

Java™ 2 Platform, Standard Edition 1.4 on the Solaris™ 9 Operating Environment

The platform matters for delivering Services on Demand.

Sun™ ONE
Open Net Environment



Key feature highlights

64-bit Support

Combined with the Java HotSpot Server VM code optimizer and existing 64-bit support in the Solaris Operating Environment, J2SE software improves Java servlet performance, enables a greater number of concurrent network connections, provides access to larger memory space, and improves overall performance from prior J2SE releases.

Enhanced Security

Java GSS-API with Kerberos support, Java Secure Socket Extension (JSSE), Java Cryptography Extension (JCE), and other security enhancements enable developers to implement the highest levels of security in their Java code. Combined with Solaris 9 security features, Java software on the Solaris Operating Environment provides the ideal secure platform for Services on Demand.

Optimized for RAS

J2SE software delivers a variety of feature enhancements that improve reliability, availability, and serviceability (RAS), including improved garbage collection.

Today's explosive levels of growth — in terms of bandwidth, networks, and digital devices — are driving an even greater shift towards a services model of computing. The Services on Demand approach moves the burden of a computing infrastructure from end users and their PCs to the organizations that provide the services. Since its inception in 1982, Sun has been driven by a singular vision — The Network Is The Computer™ — and has helped businesses harness the transforming power of the network in order to create, deploy, and deliver reliable Services on Demand.

As the foundation for the Sun™ Open Net Environment (Sun ONE) — Sun's vision, architecture, platform, and expertise for delivering Services on Demand — the Solaris™ 9 Operating Environment provides an integrated yet open architecture for building and deploying Services on Demand. The Solaris 9 Operating Environment (OE) offers new levels of performance in scalability, availability, manageability, and security, and delivers a complete and highly refined environment designed to enable customers to increase service levels while decreasing costs and reducing IT risks.

Java™ Technology

One of Sun's most memorable contributions to the IT industry in recent years is Java™ technology. The cornerstone of the Java philosophy — the Write Once, Run Anywhere™ vision — has unified the industry to a point where applications can speak a common language and coexist in a common environment. But now that applications ranging from corporate Web sites to business-critical systems are being developed on the Java platform, is running them just anywhere really the way to get maximum usefulness from your application?

That's why platform matters. Developing the most feature-rich and innovative applications in the Java language deserves the most reliable and scalable platform available today to fully exploit the potential of the Java applications. Running Java applications on the Solaris Operating Environment is the best

way to ensure achieving the highest service levels at the lowest service level cost.

The latest release of Java 2 Platform, Standard Edition (J2SE™) software has feature enhancements that, in combination with industry-proven Solaris software, deliver the optimum Java platform for deploying mission-critical applications and services.

64-bit Support in the Solaris Implementation of the Java HotSpot™ Virtual Machine

Solaris software users know that 64-bit support within the operating environment is not new, but with J2SE 1.4 software, users benefit from full 64-bit support in the Java HotSpot™ virtual machine (VM). This new feature, combined with the Java HotSpot Server VM code optimizer, has significantly improved Java servlet performance over previous versions.

Users serious about the stability of their Java applications know that the rock-solid Solaris platform is the best option for developing and deploying Java applications.

Additional benefits of the 64-bit support lie primarily in scalability and performance, including:

- The ability to handle more concurrent network socket connections, enabling real-time provisioning of socket connections.
- Access to larger memory spaces, thereby maximizing use of massive memory capabilities of the latest Sun servers, for example, the Sun Fire™ 15K server with several hundred GB of memory. Previous versions of J2SE software, v1.3.1, supported 4 GB of memory.
- Record-breaking SPECjbb2000 benchmarks on a Sun Fire 15K system configured with 104 UltraSPARC® III Cu 1050-MHz processors. Results show more than 2 times greater performance over J2SE 1.3.1 on the Solaris Operating Environment.

Summary of New Features in J2SE 1.4 Software

Java technology is designed for development and deployment on all industry-leading platforms. However, when used with the Solaris Operating Environment, the user benefits from synergy between J2SE and Solaris platform features. In the latest release, users can expect significant improvements from previous J2SE releases (see chart below).

These features, combined with Solaris software security features such as role-based access control (RBAC), integrated host-based firewall, GSS-API, and smart card support, deliver a Java deployment that doesn't compromise security for the benefit of performance.

IPv6 Support

J2SE 1.4 software contains developer APIs that work well with both IPv4 and IPv6 protocols in the Solaris 9 Operating Environment. Because of the larger address space supported by IPv6, J2SE 1.4 IPv6 support will become crucial in the development and deployment of wireless applications. This will reinforce the wireless industry acceptance that wireless applications are best developed on J2SE servers that can then supply content to Java 2 Platform, Micro Edition (J2ME™) technology-enabled devices.

J2SE 1.4 Software Security Enhancements

Features	Benefit
Java GSS-API with Kerberos support	Enables single sign-on of Java applications using Solaris software credentials
Java Authentication and Authorization Service	Allows developers using Java technology to authenticate users before allowing execution of Java code
Java Secure Socket Extension (JSSE) data	Provides functionality for encryption, server authentication, message integrity, and optional client authentication
Java Cryptography Extension (JCE)	Provides a framework and implementation for encryption, key generation, key agreement, and Message Authentication Code (MAC) algorithms

Improved Enterprise JavaBeans™ (EJB™), Java Servlet, and Instant Messaging Performance EJB components, which are a critical component of most J2EE applications, experience at least 34% performance improvement over J2SE 1.3.1 software. Furthermore, performance of Instant Messaging-type applications has shown to improve 73% over the J2SE 1.3.1 release.

Significant Improvement to RAS

There are a variety of feature enhancements in J2SE 1.4 software that improve the quality of reliability, availability, and serviceability (RAS) compared with earlier J2SE releases. These enhancements include:

- **Reliability:** A new “Assert” mechanism enables developers to check for intended behavior.
- **Availability:** Improved low-resource handling allocates resources to process when resources run low.
- **Serviceability:** A logging API provides developers with the option to collect more detailed information on applications during run time; garbage collection logging options clean data in the cache.

A complete overview of all the new features in the J2SE 1.4 release is available in the J2SE documentation at java.sun.com/j2se/1.4/docs/index.html.

Simplified Access to Product

Customers using Java technology on the Solaris Operating Environment have the benefit of access to a variety of different methods for obtaining the latest certified versions of J2SE software for the Solaris platform.

One way is to procure a Solaris media kit, which will always contain a recent and certified version of the Java Runtime Environment (JRE) integrated in the Solaris Operating Environment. Another way is to download the Solaris Operating Environment binaries for free from the Solaris Web site.

Information on both the Solaris media kit and the free binary download can be found at sun.com/solaris/binaries.

For users eager to develop with the latest J2SE version, the official Java software on the Solaris Operating Environment Web site (sun.com/solaris/java) provides updated links to all currently supported Java software for the Solaris platform, as well as pointers to archives. Beginning with the J2SE 1.4 release, Sun has improved the ease with which customers can rapidly access and download the latest J2SE software for the Solaris Operating Environment by not requiring registration for Java product downloads.

Other Java Technologies to Watch

The Solaris 9 Operating Environment enables Web services by providing a robust platform with an integrated Java Runtime Environment (JRE). XML (eXtensible Markup Language), the common data format for Web services, can be a natural extension of this Java platform by supporting feature-rich Java APIs, architectures, and technologies for XML. These technologies are interoperable with implementations on other platforms of Web Services industry standards, such as:

- SOAP with Attachments, WSDL, ebXML, UDDI
- Java API for XML Registries (JAXR): ebXML, UDDI
- Java API for XML Messaging (JAXM): SOAP, ebXML, SOAP-RP
- Java API for XML-based RPC (JAX-RPC): SOAP, WSDL
- Java API for XML Processing (JAXP): XSLT, SAX2, DOM2, Schema, XSLTc
- Web Services Description: JAX-RPC, WSDL

For more information on Web services and XML technologies from Sun Microsystems, please visit java.sun.com/webservices and java.sun.com/xml.

Java™ 2 Platform, Standard Edition 1.4 on the Solaris™ 9 Operating Environment

The Platform Matters More Than Ever

The Solaris Operating Environment is the industry-leading UNIX® platform, based on both customer adoption and quality. Users serious about the stability of their Java applications know that the rock-solid Solaris platform is the best option for developing and deploying Java applications.

With this new release of J2SE software for the Solaris Operating Environment, the concept of “Platform Matters” takes on additional meaning as J2SE enhancements implement reliability, availability, scalability, and security features that take direct advantage of the underlying platform — the Solaris Operating Environment. Users of Java technology on the Solaris platform can be assured that the evolution of J2SE software on the Solaris Operating Environment will protect their existing investments with continuing improvements in future versions of the product.

About Sun ONE

The Sun Open Net Environment (Sun ONE) is Sun’s vision, architecture, platform, and expertise for delivering Services on Demand today and in the future. Based on open standards such as Java and XML technology, Sun ONE provides a highly scalable and robust framework for building and deploying a variety of Services on Demand — from traditional Web-based applications to future context-aware Web services. By simplifying the way Web services are created, assembled, and deployed, the Sun ONE platform can enhance productivity, speed time to market, and increase business opportunities for enterprises worldwide.

System Requirements

Java 2 Platform, Standard Edition (J2SE) software is integrated into the Solaris 9 Operating Environment

For More Information

To learn more about J2SE software on the Solaris Operating Environment, visit sun.com/solaris/java.

For additional information on the Solaris Operating Environment, visit sun.com/solaris.

For more information on Sun ONE, visit sun.com/sunone.

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